

March 12, 1963

Mr. R. F. Gough
General Superintendent
Mining & Concentrating

Following are comments concerning planting vegetation on tailing pond by Miami Copper Company as a means of dust control:

The concentrator conducted experimental testing of vegetation growth during 1955 to determine the possibility of stabilizing the tailing pond. Results of the test plots are given on the attached sketch. The initial growth was fairly successful. However, the tailing pond elevation raises an average of 2-1/2 to 3 feet per year. This causes any growth of vegetation to be buried under the tailings.

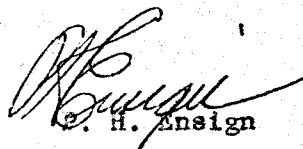
In the Southwest, the tailings ponds are usually sectionalized and tailings deposition is alternated in several areas. This arrangement minimizes the flooding effect from the tailings. When large tonnages are handled, similar to the Utah Copper Division operation, the entire pond area must be utilized for deposition.

The report of the Miami project by Mr. Bernard W. Benson indicates that their tests were made on relatively dry areas which are not subjected to the deposited tailing because he indicates tests of controlled irrigation and its effect on planted growth.

The type of vegetation tested at the Miami Copper Company and reference to desert plants is questionable when applied to our area with its more severe winters. This can only be answered by a botanist or actual field test planting.

Part of the Miami report refers to planting along the berm or outer area of the dike. Experience at Utah has shown that along the outside of the dike Russian thistles and other weeds grow naturally after the first season. In the succeeding years Russian Olive trees and Tamarack grow from natural seeding from existing growth. This growth cycle has minimized any dust problem around the outer perimeter of the dike.

PHE:mp
Atts.


E. H. Ansign

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CONCENTRATOR DUST CONTROL
1958
SCHEDULE OF EVENTS

1. Explored availability of vehicles to be used on the tailing pond in a dust control capacity

CONCENTRATOR DUST CONTROL
1958
INDEX AND REFERENCES

INDEX

1. Letter, 8Apr58, D. R. Mabey from L. J. Scheider (FWD), Terracruz specifications
2. Letter, 18Aug58, D. R. Mabey from K. M. Johnson (FWD), Terracruz proposal
3. Photo, EF&T 140-1, 15Jul58, Albee Rolligon vehicle test
4. Photo, EF&T 140-2, 15Jul58, Albee Rolligon vehicle test
5. Photo, EF&T 140-3, 15Jul58, Albee Rolligon vehicle test (note half-track)
6. Photo, EF&T 140-4, 15Jul58, Albee Rolligon vehicle test

CONCENTRATOR DUST CONTROL

1959

SCHEDULE OF EVENTS

1. Terracruzzer purchased, utilized to plow tailing pond.
2. Spray system evidently out of service by this time.

CONCENTRATOR DUST CONTROL
1960
SUMMARY OF EVENTS

1. Terracruz continues in a plowing capacity.
2. Explored availability of other flotation vehicles.

CONCENTRATOR DUST CONTROL
1961
SUMMARY OF EVENTS

1. Terracruzzer remained in plowing capacity.
2. Explored other vehicles for use on tailing pond and scheduled testing of at least one. Actual testing undetermined.

CONCENTRATOR DUST CONTROL
1961
INDEX AND REFERENCES

INDEX

1. Letter, 9May61, D. R. Mabey from D. Moyes (Brimco Mfg. Co.), "Skimmer" vehicle specifications
2. Letter, 15May61, D. R. Mabey from D. Moyes (Brimco Mfg. Co.), "Skimmer" vehicle test for Friday, 19May, at 2:00 p.m.
3. Letter, 20May61, D. R. Mabey from D. Moyes (Brimco Mfg. Co), "skimmer" vehicle test, Thursday, 25May at 2:00 p.m.
4. Letter, duplicate above, containing marginal notes to A. J. Thuli.
5. Special requisition, 22May61, AJT-5431, ref. to "Skimmer" test 25May61.

CONCENTRATOR DUST CONTROL

1962

SUMMARY OF EVENTS

1. Terracruz remained in a plowing capacity.
2. Further exploration made as to availability of other vehicles for use on the tailing pond in a dust control capacity.
3. All attempts to establish vegetation have been abandoned unless certain areas [of the pond] could be isolated for a period of years to allow plant growth.

CONCENTRATOR DUST CONTROL
1962
INDEX AND REFERENCES

INDEX

1. Memo, 6Apr62, R. S. Brown from T. B. Rees, refers to furnishing P. H. Ensign with information regarding USU's trackmaster vehicle
2. Memo, 16Apr62, T. B. Rees from D. R. Mabey, "Tailing Pond Dust Abatement"
3. Letter, 16Apr 62, Thiokol from T. B. Rees, request for trackmaster literature
4. Letter, 25A-r62, FWD from T. B. Rees, request for vehicle information
5. Letter, 30Apr62, KCC from W. J. Tierney (Atwood Vacuum Mach. Co.) inability to recommend vehicle as requested by letter 25Apr62.
6. Letter, 3May62, KCC from G. J. Martin (Americal Coleman Co.) inability to recommend vehicle as requested by letter 25Apr62.
7. Letter, 11May62, KCC from D. Moyes (Brimco Mfg. Co.) test of "Skimmer" vehicle week of 11Jun62.
8. Letter, 16May62, T. B. Rees from E. M. Tucker, Jr., (Tucker Sno-Cat Corp.) providing specifications and cost information regarding vehicle.
9. Letter, 24May62, T. B. Rees from W. H. Peters (FWD) vehicle specifications.
10. Letter, 28May62, T. B. Rees from W. H. Peters (FWD) vehicle reference.
11. Letter, 13Jun62, T. B. Rees from J. W. Hornsby (Higgins) vehicle reference.
12. Letter, 29Jun62, T. B. Rees from D. R. Mabey, Dust abatement vehicles, Re: inquiry for users of Terra tires.
13. Letter, 29Jun62, T. B. Rees from K. Johnson (FWD) vehicle specifications.
14. Letter, 19Jul62, Willys Motors Inc., from T. B. Rees, request for vehicle information.
15. Memo, 19Jul62, D. R. Mabey from T. B. Rees, vehicle information replies
16. Memo, 19Jul62, P. H. Ensign from T. B. Rees, Thiokol Trackmaster demo.
17. Memo, 20Jul62, T. B. Rees from D. R. Mabey, vehicle info. request.
18. Letter, 9Aug62, D. R. Mabey from C. B. Messenger (Kristi Co.) vehicle information.
19. Memo, 15Aug62, V. S. Barlow from D. R. Mabey, vehicle information film from Goodyear
20. Letter, 10Oct62, A. J. Thuli from P. H. Ensign, reference to vegetation test 1955 on pond.

CONCENTRATOR DUST CONTROL
1963
SUMMARY OF EVENTS

1. Terracruz remains in plowing capacity on tailing pond.
2. Further exploration into availability of vehicles for use on the tailing pond in a dust control capacity. Scheduled some testing, but actual testing undetermined.

CONCENTRATOR DUST CONTROL
1963
INDEX AND REFERENCES

INDEX

1. Letter, 12Mar63, R. F. Gough from P. H. Ensign, reference to 1955 vegetation on pond.
2. Letter, 10Apr63, D. R. Mabey from J. N. McRae (Lund Mach. Co.) vehicle specifications.
3. Memo, 19Jun63, P. H. Ensign from D. R. Mabey, vehicle test, Thiokol "Floater Unit" for 27 and 28 June.
4. Memo, 9Jul63, P. H. Ensign from D. R. Mabey, vehicle test, "Floater Unit" postponed until 30 July.

CONCENTRATOR DUST CONTROL
1964
SUMMARY OF EVENTS

1. Terracruz remains in use in a plowing capacity.
2. A crusting agent was explored for use on the tailing pond, but denied because it contained diesel fuel.
3. Further exploration in availability of other vehicles for use on pond in a dust control capacity.
4. Meeting was held in December with various agency personnel to discuss vegetative stabilization and to formulate plans to further experiment with vegetative stabilizers.

CONCENTRATOR DUST CONTROL
1964
INDEX AND REFERENCES

INDEX

1. Memo, 22Jan64, P. H. Ensign from R. P. Anderson, vehicle information (Chrysler brochure attached).
2. Letter, 30Apr64, A. J. Thuli from P. H. Ensign, soil sealers, "SS-13" denied use, diesel fuel in it.
3. Letter, 13May64, A. J. Thuli from J. H. Glenn (Seepage Control Inc.) soil sealers SS-13 and Seelo-W.
4. Letter, 22Dec64, Job file 332 from J. F. Knudsen, minutes, tailing stabiliz. w/USU and others (vegetation).

CONCENTRATOR DUST CONTROL
1965
SUMMARY OF EVENTS

1. Terracruz remains in a plowing capacity.
2. LeTourneau contacted for information about their 12,000-gallon water wagon in April. By the end of the year, decision was made to purchase.
3. A series of snow fences was constructed on the tailing pond in April.
4. A mobile sprinkler system was tested on the tailing pond in May.
5. Early in the year plans were formulated to establish experimental vegetation plots. A joint effort among UCD, USU, and the Great Salt Lake Authority personnel. During the year, greenhouse testing and field testing took place. A tailing feasibility test was negotiated between UCD and the Great Salt Lake Authority; part of the agreement was to establish an experimental vegetation plot. Information received from outside sources (INCO) regarding tailing vegetation practices. Approval given to establish test plot in the southeast corner of the pond and it is to be ready for 1966 planting.

CONCENTRATOR DUST CONTROL
1965
INDEX AND REFERENCES

INDEX

1. Memo, 21Jan65, P. H. Ensign from K. D. Parks, 19Jan tailing committee meeting report.
2. Memo, 2Feb65, K. D. Parks from D. R. Mabey, 1965 recommendations, tail. distribution systems.
3. Memo, 18Mar65, P. H. Ensign from K. D. Parks, report on 17Mar tailing committee meeting.
4. Letter, 24Mar65, J. P. O'Keefe from K. Kefauver, pub. rel. recommendations re. tail. dust.
5. Memo, 25Mar65, P. H. Ensign from K. D. Parks, meeting 23Mar regarding tailing dust problem.
6. Memo, 7Apr65, A. J. Thuli from J. P. O'Keefe, tailing dust and dike raises during winter months.
7. Memo, 7Apr65, J. P. O'Keefe from R. F. Gough, tailing dust and dike raises during winter months.
8. Photos, EF&T 237-1 and -4, 8Apr65, snow fences on pond.
9. Memo, 9Apr65, A. J. Thuli from J. P. O'Keefe, tail dust and dike raises, req. for 2-year schedule, tail. operation.
10. Memo, 12Apr65, R. F. Gough from A. J. Thuli, dike raise schedule.
11. Memo, 13Apr65, P. H. Ensign from R. F. Gough, concurrence with dike raise schedule.
12. Memo, 13Apr65, P. H. Ensign from K. D. Parks, report on 7 Apr tailing committee meeting.
13. Letter, 15Apr65, T. T. Pinder from M. E. Young (INCO) tail. seeding procedures w/attachments.
14. Letter, 28Apr65, A. J. Thuli from G. W. Wacker (LeTourneau) 12,000-gallon water wagon specifications.
15. Memo, 30Apr65, P. H. Ensign from K. D. Parks, 28Apr tailing committee meeting.
16. Memo, 3May65, P. H. Ensign from A. J. Thuli, LeTourneau vehicle.
17. Memo, 6May65, P. H. Ensign from K. D. Parks, 5May tailing committee meeting.
18. Memo, 19May65, P. H. Ensign from K. D. Parks, LeTourneau vehicle.
19. Memo, 20May65, P. H. Ensign from A. J. Thuli, LeTourneau vehicle.
20. Letter, 27May65, P. H. Ensign from H. S. Snyder (Snyder Dist. Co.) field test of mobile spray system 21May.
21. Letter, 3Jun65, J. C. Kinnear, Jr., from J. P. O'Keefe, LeTourneau vehicle purchase.
22. Letter, 6Aug65, J. C. Kinnear, Jr., from J. P. O'Keefe, LeTourneau AFE approval (KCU-6).
23. Letter, 7Dec65, A. J. Thuli from G. W. Wacker (LeTourneau) recap test results of water wagon.
24. Letter, 16Dec65, A. J. Thuli from G. W. Wacker (LeTourneau) additional wheels, water wagon.
25. Letter, 20Dec65, P. H. Ensign from A. J. Thuli, purchase of water wagon w/attached invoice
26. Memo, 21Dec65, O. C. Madsen from A. J. Thuli, authorization to pay 1/3 invoice cost to LeTourneau.
27. Letter, 22Dec65, G. W. Wacker (LeTourneau) from A. J. Thuli, 1/3 payment for water wagon.

CONCENTRATOR DUST CONTROL
1956
INDEX AND REFERENCES

INDEX

1. Photo, EF&T 121-2, 13Mar56, icing conditions, sprays
2. Photo, EF&T 129, 39Oct56, sprays buried by tailing

REFERENCES

1. Photos, EF&T 123, 124, 125, 23Aug56, 25Aug56, 29Aug56, tailing beaches from transite pipe with spigots

CONCENTRATOR DUST CONTROL
1955
INDEX AND REFERENCES

INDEX

1. Letter, 19Aug55, C. G. Quigley to P. H. Ensign, crusting agents.
2. Letter, 20Aug55, P. H. Ensign to F. C. Green, spray systems, crusting agents, vegetation, peripheral discharge pipe.
3. Memo, 24Aug55, from F. C. Green, spray systems, crusting agents, half-track vehicle.
4. Photo, EF&T 118-1, 19Aug55, Tamarack on pond.
5. Photo, EF&T 118-2, 19Aug55, areas treated with gypsum and calcium chloride.
6. Photo, EF&T 118-3, 19Aug55, inoperative sprays and piping (erosion).
7. Photo, EF&T 118-4, 19Aug55, inoperative sprays and piping (erosion).
8. Letter, 10Oct62, P. H. Ensign to A. J. Thuli, reference made to 1955 vegetation on pond.
9. Letter, 12Mar63, P. H. Ensign to R. F. Gough, reference made to 1955 plantings, dike and pond.
10. Photo, EF&T 118-2, 28Sep55, vegetation growth project on pond.
11. Photo, EF&T 118-3, 28Sep55, vegetation growth project on pond.
12. Photo, EF&T 118-4, 28Sep55, vegetation growth project on pond.
13. Sketch, SK3749, vegetation growth project on pond.
14. Memo, 28Nov55, A. G. Johnson to P. H. Ensign, "Tailing Pond Dust Control Measures from July 31, 1937 to October, 1953."
15. Memo, 30Nov55, A. G. Johnson to P. H. Ensign, "Tailing Pond Dust Control Measures from July 31, 1937 to October, 1953."

REFERENCES

1. Photo, A&M 453-3, 9Nov54 - spray system.
2. Photo, EF&T 118-1, 28Sep55 - tailing pond vegetation.
3. Photo, EF&T 119 , 22Oct55 - tailing pond vegetation.
4. Photo, EF&T 120 , 8Nov55 - tailing pond vegetation.

CONCENTRATOR DUST CONTROL

1955

SUMMARY OF EVENTS

1. Spray system still operating.
2. Calcium chloride and gypsum tried as crusting agents.
3. Orzan A, ferric sulphate, sodium silicate and waste oil tried as crusting agents.
4. Tamarack established on pond.
5. 12-inch transite pipe with spigots used to wet dry areas (peripheral discharge)
6. Vegetation growth project on pond initiated
7. Half-track vehicle still in use.

CONCENTRATOR DUST CONTROL
1954
INDEX AND REFERENCES

INDEX

1. Photo, 25May54, spray system header
2. Letter, 20Aug55, P. H. Ensign to F. C. Green, spray systems, crusting agents, vegetation, peripheral discharge pipe
3. Sketch, SK3388, 19Aug55, layout of spray system on pond

REFERENCES

1. Photo: A&M 448-2, 10Dec53, spray system operating

CONCENTRATOR DUST CONTROL
1953 & 1954
SUMMARY OF EVENTS

1953

Photo, A&M 448-2 (10Dec53) indicates spray system installed and operating on pond.

1954

Spray system of 31 sprays established.